Experimental Data Summary: Example 1

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Article Title: Isothermal vapor–liquid equilibrium at 323.15K and excess molar volumes and refractive indices at 298.15K for the ternary system propyl vinyl ether + 1-propanol + benzene and its binary sub-systems.
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Table: 1
System type (Pure, Binary, Ternary, Reaction): Pure
Chemical System(s):
propyl vinyl ether
1-propanol
Benzene
Property: density
Experimental Method (be brief): vibrating tube densimeter
Combined Expanded Uncertainty (*k* = 2) for the Property: 0.005 kg/m^3
Variables and Constraints: temperature *T*, pressure *p* (1 atm)
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T)$ = 0.01 K; $\sigma(p)$ = 5%

Table: 1
System type (Pure, Binary, Ternary, Reaction): Pure
Chemical System(s):
propyl vinyl ether
1-propanol
benzene
Property: index of refraction
Experimental Method (be brief): digital refractometer
Combined Expanded Uncertainty (*k* = 2) for the Property:
0.00005 for n < 1.40 and 0.0001 for n >1.4
Variables and Constraints: temperature *T*, pressure *p* (1 atm)
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T)$ = 0.01 K; $\sigma(p)$ = 5%

Table: 2
System type (Pure, Binary, Ternary, Reaction): Binary
Chemical System(s):
propyl vinyl ether + 1-propanol
propyl vinyl ether + benzene
1-propanol + benzene
Property: VLE - *Txy* data
Experimental Method (be brief): Head-space chromatrography
Combined Expanded Uncertainty (*k* = 2) for the Property: N/A
Variables and Constraints:
temperature T
mole fraction of PVE in the gas phase x_1
mole fraction of PVE in the gas phase y_1
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T) = 0.1$ K; $\sigma(x) = 0.003$; $\sigma(y) = 0.003$

Table: 4
System type (Pure, Binary, Ternary, Reaction): Ternary
Chemical System(s):
propyl vinyl ether + 1-propanol + benzene
Property: VLE – $Tx_1x_2y_1y_2$ data
Experimental Method (be brief): Head-space chromatrography
Combined Expanded Uncertainty (*k* = 2) for the Property: N/A
Variables and Constraints:
temperature T
mole fraction of PVE in the gas phase x_1
mole fraction of 1-propanol in the gas phase x_2
mole fraction of PVE in the gas phase y_1
mole fraction of 1-propanol in the gas phase y_2
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T) = 0.01$ K; $\sigma(y) = 0.003$; $\sigma(x) = 0.003$

Table: 6
System type (Pure, Binary, Ternary, Reaction): Binary
Chemical System(s):
propyl vinyl ether + 1-propanol
propyl vinyl ether + benzene
1-propanol + benzene
Property: density
Experimental Method (be brief): vibrating tube densimeter
Combined Expanded Uncertainty (*k* = 2) for the Property: 0.005 kg/m^3
Variables and Constraints: temperature T, pressure p (1 atm), mole fraction of PVE x_1
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T) = 0.01$ K; $\sigma(p) = 0.003$; $\sigma(x) = 0.003$

Table: 6
System type (Pure, Binary, Ternary, Reaction): Binary
Chemical System(s):
propyl vinyl ether + 1-propanol
propyl vinyl ether + benzene
1-propanol + benzene
Property: index of refraction
Experimental Method (be brief): digital refractometer
Combined Expanded Uncertainty (*k* = 2) for the Property:
0.00005 for n < 1.40 and 0.0001 for n >1.4
Variables and Constraints: temperature *T*, pressure *p* (1 atm)
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T)$ = 0.01 K; $\sigma(p)$ = 5%

Table: 7
System type (Pure, Binary, Ternary, Reaction): Ternary
Chemical System(s):
propyl vinyl ether + 1-propanol + benzene
Property: density
Experimental Method (be brief): vibrating tube densimeter
Combined Expanded Uncertainty (*k* = 2) for the Property: 0.005 kg/m^3
Variables and Constraints:
temperature *T*, pressure *p* (1 atm), mole fraction of PVE x_1,
mole fraction of 1-propanol x_2
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T)$ = 0.01 K; $\sigma(p)$ = 5%; $\sigma(x)$ = 0.0002

Table: 7
System type (Pure, Binary, Ternary, Reaction): Ternary
Chemical System(s):
propyl vinyl ether + 1-propanol + benzene
Property: index of refraction
Experimental Method (be brief): digital refractometer
Combined Expanded Uncertainty (*k* = 2) for the Property:
0.00005 for n < 1.40 and 0.0001 for n >1.4
Variables and Constraints:
temperature *T*, pressure *p* (1 atm), mole fraction of PVE x_1,
mole fraction of 1-propanol x_2
Standard Uncertainty (k = 1) for each Variable and Constraint:
$\sigma(T)$ = 0.01 K; $\sigma(p)$ = 5%; $\sigma(x)$ = 0.0002